Workbook for Quantification of Variable Condition Values for Flood Plain Wetlands of Any Size Stream

V1. Vsource - Wetland Source Area Flow Interception

A. Wetland retains hydrological connection to stream system. No levees or dikes interrupt natural flood frequency for site. Stream has not become deeply entrenched from its natural condition (stream bed is <3 feet below floodplain elevation at site **OR** it is not lower than bottom of connected oxbow). Stream adjacent to wetland has not been straightened or channelized. No diversion structures, upland structures, or drainage ditches prevents upland runoff from reaching wetland.	1
B. Wetland still retains hydrological connection to stream system as in A above **BUT** upland diversion structures prevents upland runoff from reaching wetland area or a ditch conveys runoff directly to stream bypassing wetland.	0.75
C. Stream has become moderately entrenched (>3 feet but <6 feet below floodplain elevation at site **OR** the stream bed is 1-3 feet below elevation of bottom of a connected oxbow) which reduces the historic flood frequency of the site in some years (≤50% of time). Upland runoff still reaches wetland.	0.5
D. Deeply entrenched stream (>6 feet below floodplain elevation at site or >3 feet lower than bottom of a connected oxbow) and/or levees and dikes significantly reduce flooding of the site in most years (>50% of time). Upland runoff still reaches site.	0.25
E. Wetland not hydrologically connected to stream because of levees or dikes. No diversions, upland structures or ditches intercept upland runoff.	0.1
F. Conditions of stream as in E, and upland runoff is diverted or intercepted.	0

V2. Vsurout - Surface Water Drainage Conditions

A. No modification of natural outlet, no surface drainage ditch into or within 100 feet of wetland. No surface water intakes within wetland area.	1
B. Surface water drainage feature present outside of wetland but within 50 feet of wetland edge **OR** surface water intake present but function is impaired by outlet condition or location within the wetland.	0.75
C. Surface water drainage ditch present but low point of ditch above lowest elevation of wetland **OR** ditch or tile intake affects <50% of wetland area.	0.5
D. Fully functioning tile intake present **OR** drainage ditch affects ≥50% of wetland.	0.25
E. Surface drainage ditch into wetland is present and outlet elevation is below the lowest elevation of wetland.	0.1
F. Wetland is drained and graded or filled so that it no longer provides any surface storage of water **OR** wetland is within 50 feet of a drainage ditch or an entrenched stream with a bottom elevation that is ≥3 feet below lowest elevation of wetland.	0

V3. **Vsubout - Subsurface Drainage Conditions of Wetland**

A. No tile lines are within the wetland **nor** within 100 feet of wetland boundary	1
B. No functioning tile is located within the wetland **BUT** the wetland is within 100 feet of a functioning tile system.	0.75
C. There is some functioning tile within the wetland but <50% of the area is affected.	0.5
D. There is some functioning tile within the wetland that affects ≥50% of the basin **BUT** <100%, i.e., not patterned tiled.	0.25
E. Extensive tile affects the entire wetland (>90%), i.e., pattern tiled.	0.1

V4. **Vwet - Wetland Landuse**

A. Wetland in natural vegetation, either woody cover or native grasses. No tillage for crop production or haying of wetland except for maintenance of natural vegetation. Not regularly hayed or grazed by livestock. Wetland not used for forest product production, only incidental removal of any woody cover.	1
B. Wetland is infrequently disturbed by haying or grazing (not annually). If hayed, . < 1 cuttting/year. If grazed, stocking rate is light to moderate density and grazing is not for full growing season . Residual vegetation height averages ≥8 inches. Herbaceous vegetation predominately all native or a mixture of native and tame species of grasses and forbs. Wetland not used for regular crop production, not cropped more than 2 of last 10 years. Any removal of woody cover is by infrequent selective harvest, no clear cuts.	0.75
C. Wetland is irregularly disturbed by cropping, <50% of time. Haying is limited to once annually on average, or moderately or rotationally grazed by livestock, but not full season access. Good residual herbaceous cover remaining for winter, averages ≥6 inches. >50% of Herbaceous vegetation is tame species. Moderate removal of woody cover allowed but < 50% of wetland area is affected and harvest is done as part of a forest stewardship management plan.	0.5
D. Wetland is disturbed ≥ 50% of time by tillage and cropping in last 10 years, or hayed ≥2 times annually. Moderate Grazing ≥50% of time with full season access in most years but not heavily grazed, with average forage height of >3 inches and with patches of denser tall vegetation available for winter wildlife use. **OR** All dominant species are tame grasses and forbs **OR** vegetation is monoculture of invasive species such as reed canarygrass regardless of grazing pressure. Any woody vegetation is limited to scattered patches of trees or brush or confined to streambanks.	0.25
E. Wetland tilled and planted >90% of time to crops or is full season access pasture with little residual height to vegetation for winter wildlife cover. Any woody cover is just scattered patches of invading brush/trees acting like weeds. **OR** Wetland is none of the above conditions	0.1

V5. **Vsoil - Soil Conditions of Wetland**

Use soil survey drainage classes for soil map units. Confirm the soil series mapping unit for the wetland in the field. Use the dominant soil map unit for wetland site being rated.

A. Dominant map unit drainage class is very poorly drained or poorly drained and soil has not been compacted or rutted by tillage or grazing when wet. 1

B. Dominant map unit drainage class is very poorly drained or poorly drained and while tillage or grazing when wet has occurred, it is not enough to prevent water movement within the soil profile 0.75

C. Dominant map unit drainage class is somewhat poorly drained and soil has not been compacted or rutted by tillage or grazing when wet **OR** dominant map unit is very poorly or poorly drained and wetland shows obvious signs of being tilled or grazed when too wet so that the soil profile so disrupted that normal water movement within the soil profile is impaired. 0.4

D. Obvious evidence of rutting by machinery or has been heavily trampled and churned by livestock. Soil profile so disrupted that normal water movement within the soil profile unlikely to occur. 0.1

V6. **Vbuffer - Wetland Buffer Landuse**

Predominant conditions of the 50 foot wide strip immediately adjacent to the wetland area. Select the conditions that most closely approximate the conditions of the area.

A. No alteration to natural condition, ≥50 foot wide strip of persistent herbaceous or woody vegetation is present around ≥75% of the wetland perimeter **OR** upland land use (V13) score is 1.0. 1

B. Undisturbed buffer strip 30-50 feet wide around ≥75% of wetland perimeter **OR** grazing disrupts the 50 foot wide buffer zone around wetland but residue height averages ≥6 inches. 0.75

C. Buffer strip 15-30 feet wide around ≥75% of wetland **OR** buffer ≥30 feet wide but disrupted by tillage or heavy grazing (average residue height ≥3 inches) **OR** no buffer but no-till agriculture on adjacent fields. 0.5

D. Undisturbed buffer strip ≥30 feet wide on ≥35% of wetland perimeter **OR** buffer ≥10 feet wide on ≥75% of wetland edge **OR** buffer ≥30 feet wide around ≥50% of area but heavily grazed (<2 inch average height) most years. 0.25

E. No buffer as any of above conditions **BUT** conservation tillage residue levels on adjacent cropland. 0.1

F. None of above conditions 0

V7. **Vpabun - Plant abundance in Wetland**

A. Wetland dominated (>3 dominant species) of persistent herbaceous or woody wetland plant species such as prairie cordgrass, sedges, cattails, bulrushes, river birch, dogwood, hazel alder, buttonbush, swamp white oak, S. Maple, willow. 1

B. Wetland dominated by mixture of persistent herbaceous and woody species and areas of open ground or mudflats caused by drown outs. 0.75

C. Wetland is mixture of persistent wetland species, open areas, and annual weeds, open areas and annual weeds are result of floodwater drawdowns and not livestock pressure and weed control. 0.5

D. Wetland is a mixture of cropfield and annual weeds or tame grass pasture **OR** it is a monotypic stand of 1 dominant species such as reed canarygrass. 0.25

E. Site is dominated by crop with mostly clean conditions and few weeds. 0.1

V8. **Vwildlife - Wildlife Usage and Habitat**

Summarize species and their wetland uses on tally sheet below to choose variable conditon that applies

A. More than four of the following wildlife groups use the wetland:
1) Migratory waterfowl; 2) Resident mammals; 3) other migratory bird species;
4) Non-migratory bird species 5) Amphibians and reptiles; 6) Wetland invertebrate

AND

each of the >4 wildlife groups use the area for ≥2 of the following uses:
a) Nesting/breeding; b) Winter Cover; c) brood cover; d) migratory staging;
e) Seasonal or longer resident range; f) primary feeding site. 1

B. Three to four wildlife groups in A above each use wetland for ≥2 uses in A. 0.8

C. Two to three wildlife groups in A above each use the wetland for ≥2 uses in A. 0.6

D. More than four of the wildlife groups in A above each use the wetland for >1 use in A. 0.5

E. Three to four wildlife groups in A above each use wetland for ≥1 uses in A 0.4

F. Two to three wildlife groups in A above each use the wetland for >1 uses in A **OR** one wildlife group use the site for ≥2 uses in A. 0.2

G. One wildlife group from A uses the wetland for ≥1 use. 0.1

F. No evidence of any groups using area as in A above, only occasional use for miscellaneous feeding or travel. 0

SUMMARY TABLE FOR V8

Wetland Use

Wildlife Group

	Nest/Breed	Winter Cover	Brood Cover	Migration	Resident Range	Primary Feeding site
Waterfowl						
Resdent Mammal						
Migratory birds						
Non-migratory birds						
Amphibians/reptiles						
Wetland Invertebrates						

Number of Species _____ Number with 2+ uses _____ Number with 1 use ____

V9. Vwsize - Size of Entire Interconnected Wetland Tract

A. Wetland being assessed is part of a contiguous, interconnected wetland complex that is >50 acres. 1

A. Wetland being assessed is part of a contiguous, interconnected wetland that is >25 but ≤50 acres 0.75

B. Wetland being assessed is part of a contiguous, interconnected wetland that is >10 acres but ≤25 acres. 0.5

C. Wetland being assessed is part of a contiguous, interconnected wetland that is >5 acres but ≤10 acres. 0.25

D. Wetland being assessed is part of a total, interconnected wetland tract that is <5 acres. 0.1

E. No wetland acres remaining 0

V10. Vdetr - Organic Residue Within Wetland (Detritus)

Detritus is organic residue in various stages of decomposition.

A. Organic residue averages ≥ three inches in thickness 1

B. Organic Residue averages two-three inches in thickness 0.75

C. Organic residue averages one-two inch in thickness. 0.5

D. Organic residue averages 1/2-one inch. 0.25

E. Organic residue is <1/2 inch **OR** is composed entirely of last 1-2 years crop residue/weeds. 0.1

V11. Vpratio - Native to Non-Native Plant Ratio

NOTE: Use the 50:20 rule to select the dominant species in the wetland.

A. More than 75% of dominant species are on list of 'desirable' species. 1

B. More than 50% of dominant species are on list of 'desirable' species **AND** all dominant species are hydrophytes. 0.75

C. At least one of dominant species are on 'desirable' list **AND** all dominant species are hydrophytes. 0.5

D. Site is primarily crop or tame grass pasture with a least one dominant hydrophytic 'weedy' species 0.25

E. Site is primarily crop or tame grass pasture and has no dominant hydrophytic species **OR** site is a monoculture of hydrophytic invasive species such as reed canarygrass or purple loosestrife. 0.1

F. Site is all crop or bare ground. 0

NOTE: For the purpose of this functional assessment some examples of 'desirable' species 'weedy' or 'invasive' species are listed below:

"Desirable"

Swamp White Oak
Burr Oak
Hazel Alder
Buttonbush
American Elder
River Birch
Red Ossier Dogwood
Green Ash
Silver Maple
Cottonwood
Sandbar Willow
Black Willow
Peachleaf Willow
Rooted Aquatics
Duck weeds
Iron weed
Joe-Pye-weed
Cup Plant
Rice Cutgrass
Whitegrass
Fowl Mannagrass
Bur-reed
River & Green Bulrush
Sedges, FAC or wetter
Soft & Hardstem Bulrush
Spike Rushes
All Bidens
Amphibious Smartweed
Pepper Smartweed
Tearthumb Smartweed
Germander
Blue Vervain
Tall Sunflower
False/dull leaf Indigobush
Swamp milkweed
Prairie Cordgrass

Weedy

Pennsylvania Smartweed
Yellow Nutsedge
Barn-Yard Grass
Cattail
Fox Tail Barley
Yellow Foxtail
Red Top
Poison Ivy
Stinging Nettle
Water or Poison Hemlock
Pale or Curly Dock
Hemp Dogbane
Boxelder

'Invasive'

Reed Canarygrass
Purple Loosestrife
Giant Reed Grass

V12. **Vsed - Sediment Delivery to Wetland**

A. No recent obvious sediment deposits in wetland from upland erosion or tillage deposition from surrounding lands. May be sediment or flood borne debris from out of bank flooding by stream.	1
B. Infrequent delivery of sediment from upland runoff or from tillage or grazing on adjacent lands. Any sediment deposits present are stabilized sediment fans in edge of wetland but <25% of wetland is impacted. May be sediment or flood born debris from out of bank flooding by stream.	0.75
C. Evidence of sediment deposition seen in new deposits of unvegetated sediments or fans around existing vegetation from upland run off or from grazing livestock action on the wetland edges. From 25-50% of wetland impacted.	0.5
D. Evidence of sediment deposition seen in new deposits of unvegetated sediments or fans around existing vegetation from upland run off or from grazing livestock action on the wetland edges. More than 50% of wetland impacted.	0.35
E. Obvious deposition of sediment across >90% of wetland >50% of years. Sediment deposits lays over vegetation or buries vegetation and detritus in wetland. No buffer for intercepting upland runoff.	0.1
F. Sediment in large dunes or piles in most of wetland area. Upland runoff not reduced by adequate land treatment (no BMP's or erosion control practices to prevent erosion or intercept and convey it away from wetland.	0

V13. **Vup - Upland Land Use**

Note: Upland land use applies only to immediate drainage area of the wetland NOT the entire upstream drainage area of the floodplain.

A. The upland area is in multiple species of herbaceous and/or woody vegetation. Vegetation is infrequently disturbed by haying, grazing, timber harvest, etc. Disturbance is for management of vegetation rather than for commercial production of food or fiber.	1
B. Uplands dominated by multiple species of herbaceous vegetation with light to moderate grazing. Woodlands are managed for infrequent timber production or are only lightly grazed on irregular basis.	0.75
C. Upland area is in herbaceous or woody cover with moderate grazing by livestock with some areas of bare ground from livestock access. **OR** upland is in cropland with no fall tillage, conservation cover levels of residue are present after planting **OR** uplands dominated by CRP with any crop as a secondary landuse.	0.5
D. Uplands are heavily grazed herbaceous or woody cover with large amounts of obvious bare ground, **OR** are in cropland with conservation cover but fall tillage, **OR** cropland with spring tillage and less than conservation cover residue levels some years.	0.25
E. Uplands are primarily cropland with fall tillage, little residue cover after planting, **OR** are feedlots, or other low cover, buried residue situations.	0.1
F. Uplands are urban development, roads, parking lots, or other high run-off situations	0